of freshwater fish. In this case no difficulty arises, since the date was unquestionably later and since the species are recognized as falling under the *Galaxias* of Cuvier, 1817.

The fourth, I will not venture to say the final, use of the name was by E. Hoffmann in his paper "*Mesites*, eine neue Gattung der Crinoideen" (Verhandl. Russ.-kais. mineral. Gesell. St. Petersburg, 2e Ser. Bd. i. pp. 1–5, pl. i., 1866), the only species being *M. Pusirefskii*. The genus is not a crinoid in the modern restricted sense, but is usually regarded as a cystid, having affinities with the Echinoidea, or the Edrioasterida, or the Blastoidea, according to the taste of the person discussing it. The name μεσίτης (a mediator) is therefore appropriate enough; but it belongs to the weevil, and another name must be found for the echinoderm. None exists already; even Professor Hæckel, in his recent ingenious rearrangement and renaming of the Cystidea, did not lay hands on *Mesites*. Having occasion to refer to this genus in more than one forthcoming publication, I propose to do so under the name *Mesocystis*.

This bibliographic inquiry has been facilitated by the kindly help of my colleagues, R. Bowdler Sharpe, W. R. Ogilvie Grant, C. O. Waterhouse, and C. J. Gahan, who, so far as their respective subjects are concerned, agree with the following conclusions. The four *Mesites* must be spoken of in future thus:—

the weevil as *Mesites*, Boheman in Schönherr, 1838;
the bird as *Mesœnas*, nom. mut., Reichenbach, 1850;
the fish as *Galaxias*, Cuvier, 1817;
the echinoderm as *Mesocystis*, nom. nov.

F. A. Bather.

British Museum (Natural History),
Nov. 30, 1897.

Observations on the Crabs of the Family Dorippidæ.
By E.-L. Bouvier.

The Dorippidæ are crabs which for the most part live at a greater or less depth in the ocean. Prior to the submarine explorations effected during the last twenty years they were divided into three genera (*Dorippe*, *Ethusa*, *Palicus*), and numbered no more than thirteen species; since then the number of species has progressively increased until it now amounts to sixty, which are distributed among nine genera. Having had most of these forms at my disposal, I thought it would be advantageous to make use of them in order to determine the origin and evolution of the family.

If the Dromidæ occupy the front rank among the crabs and connect the latter with the Macrura belonging to the lobster-group, the Dorippidæ follow immediately after and must be considered as modified Dromidæ. This fact is to-day admitted without dispute by the greater number of zoologists; but it is all that is known as to the origin of the family, and hitherto no one has fixed

more precisely its true point of departure. Now the Dromidæ include three very distinct subfamilies (Homolinæ, Drominæ, Dynomeninæ), and we are entitled to ask ourselves which of these is the one whence the Dorippidæ have sprung.

The question is not difficult to solve. Almost all the Dorippidæ exhibit a lateral line, and in many of them the females are provided with peculiar furrows on the sternal face of the thorax. These two fundamental characters reappear in the Drominæ and in the Dynomeninæ, and since they are absent in the case of the Homolinæ, this latter subfamily is *de facto* set on one side. Again, many Dorippidæ have a rostrum which is decidedly triangular in shape, like that of the Dynomeninæ; moreover, the Palicids, their most primitive group, resemble the latter subfamily in respect of the posterior pair of legs, which alone are modified and brought over on to the back. The Dorippidæ therefore are connected with the Dromidæ of the subfamily Dynomeninæ.

The adaptive modifications which have transformed the Dromidæ into Dorippidæ have essentially affected the respiratory organs. The efferent apparatus has developed in a fairly progressive manner: the two expiratory orifices, which are very wide apart in the Dromidæ, have gradually approached one another, and have ended by fusing together into a more or less projecting endostomial furrow on the frontal side. But it has been otherwise in the case of the afferent orifices. Situated at the very base of the anterior limbs in the Dromidæ, sometimes they have undergone reduction until they closed altogether, sometimes they have become enlarged and elongated and have assumed the form of a cleft, in which moves the basal joint of the external maxillipeds, with its long epipodite. Hence two subfamilies, two separate series, which also differ one from another in other important characters.

Among these latter the most typical are those which are connected with the female genital apparatus. In the species belonging to the first series the female sexual aperture has remained at the base of the third pair of limbs, as in the case of the Dromidæ; moreover, the eggs are few in number, of very large size, and certainly produce young differing but little from the adult. In the second series the female sexual aperture has become sternal in position, as in the case of the crabs, while at the same time the eggs, which are numerous and small, produce but little advanced larval forms. I do not see what relation exists between these two classes of characters; but, as regards the position of the sexual apertures, it is permissible to state that the Dorippidæ of the first group are far from having completed their evolution, for the Leucosidæ, which show great affinity to them, already exhibit these orifices on the sternal face.

As for the special evolution of the two subfamilies, this appears to me to be closely connected with the dimensions of the ova. With large eggs, and consequently late hatching, the young are necessarily little different from the adult and badly endowed as regards swimming-power; the dissemination and, in consequence, the diversification of the forms must be limited. With small eggs

and the precocious hatching which results therefrom the young are swimming larvæ well suited to disseminate the forms and to cause them to vary. In fact, the Dorippidæ of the first series are much less numerous than those of the second; of the former ten species are known, as against fifty belonging to the second group.

Like the primitive Dynomeninæ (*Acanthodromia*, *Dynomene ursula*—a near ally of *D. Filholi*), the Dorippidæ originated in the Caribbean Sea and in the neighbouring parts of the Pacific at an epoch when the Isthmus of Panama had not yet emerged from the bottom of the waters. The Caribbean Sea, in fact, numbers not less than five-and-twenty species, belonging to all the genera except *Cymonomops* and *Dorippe*, which are those in which, in each subfamily, evolution has assumed its greatest intensity. Nay, more, it is the primitive forms that abound in the Caribbean Sea (fifteen species of *Palicus* out of twenty-two, all the known species of the genera *Cymopolus* and *Corycodus*), while the ultimate forms prevail in the centres remote from this sea (ten out of twelve species of *Dorippe* in the western Indo-Pacific area, *Cymonomops*). It is to be observed that several species belonging to the Caribbean Sea are found again in the eastern Atlantic, or are represented by very closely allied forms in the American waters of the Pacific. These facts, in conjunction with many others of the same nature, allow us to conclude that at an epoch but little removed from our own the Strait of Panama still existed, and that the relations between the two shores of the Atlantic were much closer than they are to-day *. —*Comptes Rendus*, t. cxxv. no. 20 (November 15, 1897), pp. 784–787.

"*Butterflies from the Pacific Islands.*"

To the Editors of the 'Annals and Magazine of Natural History.'

Gentlemen,—I venture to direct your attention to the very inaccurate title given by Mr. Grose-Smith to his paper on new butterflies in the last number of your Journal (ser. 6, vol. xx. p. 515). Of the six species there described, the first is from Sumba Island, one of the Timor group, the next four from New Guinea, and the last from one of the Solomon Islands. To call this a paper on "New Species of Butterflies from the Pacific Islands" seems to me a serious geographical error.

I am, Gentlemen,
Yours &c.,
P. L. Sclater.

3 Hanover Square, W.
Dec. 2nd, 1897.

* The two subfamilies of which I have spoken above are the **Cyclodorippinæ** and the **Dorippinæ**. In a subsequent paper I shall show that the former divides itself naturally into two tribes—Cymonomi (*Cymopolus*, *Cymonomus*) and Cyclodorippi (*Corycodus*, *Cyclodorippe*, *Cymonomops*); the latter into two others—Palici (*Palicus*) and Dorippi (*Ethusa*, *Ethusina*, *Dorippe*).